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ABSTRACT OF THE DISCLOSURE

A patterned mask is located at a distance from a linear detector array. A point radiating source illuminates the aperture to cast an image onto the array. A computer is employed to identify frequencies in the frequency domain to determine the image scale and shift along the detector array axis. Determination of the magnification of the aperture image is made employing frequency domain techniques, the aperture pattern being re-scaled to match that of the actual image, so that determination of pattern shift can be made. A first embodiment of the present invention has two variations, one of which employs the use of multiple single frequency components and phase methodology, the second of which uses multiple single frequency components as well as a variable frequency component. In a second embodiment, a composite image is also used except that only one single frequency component is used in addition to a non-periodic function.